Comparisons of Job Characteristics

Focus Occupation: Chemical Engineers (17-2041)
Associated Occupation: Petroleum Engineers (17-2171)

Compare Knowledge
Compare Skills
Compare Abilities
Compare Detailed Work Activities
Compare Tools and Technologies

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

Knowledge

Similarity of Focus Occupation to Associated Occupation: 86

Focus Occupation: Chemical Engineers (17-2041)
Associated Occupation: Petroleum Engineers (17-2171)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Engineering and Technology	5.7	22.0	24.1	0	Current knowledge level may be sufficient
Mathematics	9.2	17.4	19.4	>	Current knowledge level is likely sufficient
Physics	4.3	15.3	16.9	>	Current knowledge level is likely sufficient
Computers and Electronics	8.4	14.2	12.7	<	Expanded education and/or training may be required
Administration and Management	8.4	12.9	12.7	0	Current knowledge level may be sufficient
Chemistry	4.8	11.6	20.5	>>	Current knowledge level is likely more than sufficient
Economics and Accounting	4.4	11.2	7.6	<<	Extensive education and/or training may be required
Design	5.2	9.7	15.2	>>	Current knowledge level is likely more than sufficient
Geography	3.9	9.4	5.4	<<	Extensive education and/or training may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Skills

Similarity of Focus Occupation to Associated Occupation: 61

Focus Occupation: Chemical Engineers (17-2041)
Associated Occupation: Petroleum Engineers (17-2171)

Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
10.7	15.5	13.4	<	A higher skill level may be required
9.1	13.5	14.5	0	Current skill level may be sufficient
9.2	13.5	11.5	<	A higher skill level may be required
	Rating, All Occupations 10.7 9.1	Rating, All Occupation's Nating Occupation's Rating 10.7 15.5 9.1 13.5 9.2 13.5	Rating, All Occupation's Rating Occupation's Rating Occupation's Rating 10.7 15.5 13.4 9.1 13.5 14.5 9.2 13.5 11.5	Rating, All Occupation's Rating Occupation's Rating Occupation's Rating Occupation's Rating Cocupation's

Monitoring	9.9	12.8	11.8	0	Current skill level may be sufficient	
Coordination	9.1	12.0	9.5	<	A higher skill level may be required	
Time Management	8.9	11.8	10.1	<	A higher skill level may be required	
Systems Evaluation	6.4	11.6	13.4	>	Skill level is likely sufficient	
Systems Analysis	6.5	11.5	14.1	>	Skill level is likely sufficient	
Management of Personnel Resources	6.9	10.7	8.9	<	A higher skill level may be required	
Science	4.5	10.5	18.0	>>	Skill level is likely more than sufficient	
Mathematics	6.2	10.1	14.7	>>	Skill level is likely more than sufficient	
Negotiation	6.8	9.7	7.3	<<	Extensive development of skills in this area may be required	
Management of Material Resources	3.7	7.3	6.8	0	Current skill level may be sufficient	
Management of Financial Resources	3.3	7.1	7.4	0	Current skill level may be sufficient	
Technology Design	2.6	5.4	8.5	>>	Skill level is likely more than sufficient	

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Abilities

Similarity of Focus Occupation to Associated Occupation: 96

Focus Occupation: Chemical Engineers (17-2041)
Associated Occupation: Petroleum Engineers (17-2171)

Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation	
Written Comprehension	11.0	15.7	15.0	0	Current ability level may be sufficient	
Written Expression	9.8	14.8	11.5	<<	Extensive improvement in abilities may be required	
Inductive Reasoning	10.2	14.2	14.6	0	Current ability level may be sufficient	
Problem Sensitivity	11.1	13.9	14.8	0	Current ability level may be sufficient	
Information Ordering	9.9	12.9	15.1	>	Current ability level is likely sufficient	
Category Flexibility	9.0	12.6	15.2	>	Current ability level is likely sufficient	
Mathematical Reasoning	6.3	11.7	14.2	>	Current ability level is likely sufficient	
Fluency of Ideas	7.6	11.1	11.6	0	Current ability level may be sufficient	
Time Sharing	6.6	8.5	5.8	<<	Extensive improvement in abilities may be required	

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Activities that Both Occupations Have in Common

Similarity of Focus
Occupation to Associated
Occupation: 95

Focus Occupation: Chemical Engineers (17-2041)
Associated Occupation: Petroleum Engineers (17-2171)

Work Activities Exclusivity of Activity

19 Advise clients or customers 67 Advise clients regarding engineering problems 67 Analyze engineering design problems 69 Analyze engineering test data 71 Analyze project proposal to determine feasibility, cost, or time 69 Analyze scientific research data or investigative findings 27 Analyze scientific research data or investigative findings 27 Analyze technical data, designs, or preliminary specifications 47 Analyze test data 64 Calculate engineering specifications 64 Calculate engineering specifications 64 Calculate scientific or technical data 30 Communicate technical information 41 Compile numerical or statistical data 38 Confer with engineering, technical or manufacturing personnel 25 Confer with research personnel 50 Confer with research personnel 71 Create mathematical or statistical diagrams or charts 43 Delegate authority for engineering nactivities 73 Design control systems 78 Design machines 82 Develop panachines 82 Develop por maintain databases 30 Develop por maintain databases 30 Develop por maintain databases 30 Develop policies, procedures, methods, or standards 21 Develop policies, procedures, methods, or standards 21 Develop policies procedures, methods, or standards 27 Develop policies procedures, methods, or standards 27 Develop policies procedures, methods, or standards 27 Develop policies, procedures, methods, or standards 27 Develop policies, procedures, methods, or standards 27 Develop policies, procedures, methods, or standards 37 Direct personnel in support of engineering activities 77 Direct personnel in support of engineering activities 78 Direct and
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Estimate time needed for project 64 Evaluate costs of engineering projects 70 Evaluate engineering data 60
Evaluate costs of engineering projects 70 Evaluate engineering data 60
Evaluate engineering data 60
Evaluate manufacturing or processing systems
Evaluate manufacturing or processing systems
Examine engineering documents for completeness or accuracy 62
Explain complex mathematical information 30
Follow safe waste disposal procedures 50
Inspect facilities or equipment for regulatory compliance 51
Lead teams in engineering projects 73
Plan construction of structures or facilities 75
Plan production processes 84
Plan scientific research or investigative studies 48
Plan testing of engineering methods 72
Prepare reports 8
Prepare technical reports or related documentation 22
Provide analytical assessment of engineering data 75
Read technical drawings 7

Resolve engineering or science problems	46
Test equipment as part of engineering projects or processes	67
Understand engineering data or reports	48
Understand properties of gases or liquids	78
Use computer aided drafting or design software for design, drafting, modeling, or other engineering tasks	58
Use computers to enter, access or retrieve data	3
Use drafting or mechanical drawing techniques	50
Use government regulations	44
Use hazardous materials information	35
Use intuitive judgment for engineering analyses	72
Use knowledge of investigation techniques	16
Use mathematical or statistical methods to identify or analyze problems	30
Use pollution control techniques	62
Use project management techniques	47
Use quantitative research methods	35
Use relational database software	26
Use research methodology procedures within manufacturing or commerce	75
Use scientific research methodology	21
Use spreadsheet software	18
Use technical regulations for engineering problems	61
Use word processing or desktop publishing software	17
Work as a team member	36
Write business project or bid proposals	48

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Tools and Technologies that Both Occupations Have in Common

Similarity of Focus
Occupation to Associated
Occupation: 88

Focus Occupation: Chemical Engineers (17-2041)
Associated Occupation: Petroleum Engineers (17-2171)

Tools and Technologies	Exclusivity
Business function specific software	1
Computers	1
Content authoring and editing software	1
Data management and query software	1
Finance accounting and enterprise resource planning ERP software	2
Industry specific software	1

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.